This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A biocompatible implant for surgical implantation comprising:

a matrix comprising a resorbable composition selected from the group consisting of polybutyleneterephthalate, polyethyletherketone and combinations thereof, the matrix having a pore size of between about 150 to about 400 μm and a porosity of between about 50% to about 60% by volume, the pore size and porosity effective for enhancing bone growth adjacent the composition,

wherein the implant provides mechanical load-bearing support for natural bone structure for a predetermined period of time to allow the natural bone structure to grow adjacent the material.

2. (Original) The implant of claim 1 wherein the natural bone structure substantially replaces the implant after a predetermined time.

3. (Canceled)

4. (Original) The implant of claim 3 wherein the implant also includes a growth-enhancing composition for stimulating new tissue growth at the site of implantation.

5. (Previously presented) The implant of claim 4 wherein the resorbable composition degrades upon implantation at a first rate to provide load-bearing support for a predetermined period of time and the growth-enhancing composition degrades upon implantation at a second rate faster than the first rate to stimulate new tissue growth on the implant.

6. (Original) The implant of claim 4 wherein the growth-enhancing composition includes a biocompatible polymer-ceramic composition and a calcium source.

7. (Original) The implant of claim 6, wherein the growth-enhancing composition further comprises one or more transforming growth factors.

8. (Previously presented) The implant of claim 6 wherein the polymer of the polymer-ceramic composition is selected from the group consisting of polycaprolactone, copolymers of polylactic acid and-polyglycolic acid, linear aliphatic polyesters, and blends thereof.

9. (Withdrawn) The implant of claim 4 wherein the growth-enhancing composition is blended with the resorbable composition.

10. (Withdrawn) The implant of claim 6 wherein the calcium source is calcium sulfate in fibrous form and wherein the calcium source is blended into the resorbable composition.

11. (Currently amended) A biomedical implant comprising:

a porous structure formed from a thermoplastic material selected from the group consisting of polybutyleneterephthalate, polyethyletherketone and combinations thereof, the porous structure having a porosity between about 25% to about 70% by volume and a pore size between about 100 to about 2400 μm, the porous structure providing load-bearing support for natural bone structure for a predetermined period of time; and

a ~~ceramic~~ composition for enhancing the rate of bone growth, wherein the composition one or more of polylactic acid, polyglycolic acid, polylactic acid-polyglycolic acid copolymer, polycaprolactone, and combinations thereof, and coats at least a portion of the structure or fills at least a portion of the pores of the structure.

12. (Currently amended) The implant of claim 11 wherein the thermoplastic material is a resorbable material that degrades at a first rate to provide load-bearing support for a predetermined period of time and the ~~ceramic~~ composition for enhancing the rate of bone growth degrades at a second rate faster than the first rate to stimulate initial tissue growth on the implant.

13. (Original) The biomedical implant of claim 11 wherein the structure has a porosity between about 50% to 60% by volume and a pore size between about 150 to about 400 μm.

14. (Canceled)

15. (Original) The biomedical implant of claim 11 wherein the ~~ceramic~~ composition for enhancing the rate of bone growth includes ~~a polymer and~~ a calcium source.

16. (Withdrawn) A method of fabricating a biomedical implant comprising the steps of:

(a) forming a feedrod from a polymer composition selected from the group consisting of polymethylmethacrylate, polybutyleneterephthalate, and polyethyletherketone;

(b) passing a first amount of the feedrod through a dispensing head and onto a working surface in a predetermined pattern to form a first layer of the polymer composition on the surface;

(c) passing a second amount of the feedrod through the dispensing head and onto the previously-formed first layer in a predetermined pattern to form a multilayer object having a predetermined porosity; and

(d) applying onto the multiplayer object a biocompatible composition in an amount effective for enhancing bone growth to provide a porous implant object.

17. (Withdrawn) The method of claim 16 wherein the porous implant object is heated for a time and at a temperature effective for annealing the object.

18. (Withdrawn) The method of claim 16 wherein a thin, flexible material is wrapped around the porous implant object and a vacuum applied to provide an outer covering for holding the biocompatible composition on the multiple layer object.

19. (Withdrawn) The method of claim 16 wherein the multiplayer object has a porosity of between about 25% to about 70% by volume and a pore size between about 100 to about 2400 μm.

20. (Withdrawn) The method of claim 16 wherein the biocompatible composition includes a ceramic composition selected from the group consisting of polylactic acid, polyglycolic acid, polylactic acid-polyglycolic acid copolymer, polycaprolactone, and combinations thereof.

21. (Withdrawn) The method of claim 20 wherein the biocompatible composition further comprises a calcium source.

22. (Withdrawn) The method of claim 21 wherein the ceramic composition and the calcium source are blended at ratios of between about 1:1 to about 1:5.

23. (Withdrawn) The method of claim 16 wherein the viscosity of the polymer composition is between about 100 to about 500 centipoise at temperatures between about 80° to about 100°C.

24. (Withdrawn) An implant formed by the method of claim 16.

25. (Currently amended) A method of repairing or replacing tissue comprising the steps of:

forming a biocompatible substrate including a polymer composite selected from the group consisting of polybutyleneterephthalate, polyethyletherketone and combinations thereof, and a growth-enhancing composition including ~~a ceramic composition selected from the group consisting of~~ one or more of polylactic acid, polyglycolic acid, polylactic acid-polyglycolic acid copolymer, polycaprolactone, and combinations thereof, wherein the biocompatible substrate has a porosity between about 25% to about 70% by volume and a pore size between about 100 to about 2400 μm, the porosity being effective for enhancing new growth of bone and tissue; and

surgically implanting the biocompatible substrate in vivo at a desired site of repair to provide a foundation for new bone and tissue growth and load-bearing support during growth of new bone and tissue.

26. (Original) The method of claim 25 wherein the biocompatible substrate is a resorbable material that degrades at a first rate to provide load-bearing support for a predetermined period of time and the growth-enhancing composition degrades at a second rate faster than the first rate to stimulate initial tissue growth on the substrate.

27. (Previously presented) The implant of claim 4 wherein the growth-enhancing composition is a coating over at least a portion of the matrix.

28. (Currently amended) The implant of claim 25 wherein the ~~ceramic composition is~~ one or more of polylactic acid, polyglycolic acid, polylactic acid-polyglycolic acid copolymer, polycaprolactone, and combinations thereof provides a coating over at least a portion of the biocompatible substrate.